**Newton’s Laws Webquest Name:**

**Newton’s First Law: Inertia** [**http://www.physicsclassroom.com/Class/newtlaws/u2l1a.cfm**](http://www.physicsclassroom.com/Class/newtlaws/u2l1a.cfm)

1. What is the other name for Newton’s First Law?

2. Write the law:

3. According to this law, “Objects keep on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”

4. What would change the motion of an object?

1. Depression
2. Balanced Force
3. Unbalanced Force
4. Location

🡪 Click on the first “Animation” link. It will take you to a page called “The Car and The Wall”

5. In a few sentences, describe the scenario they describe on this page:

6. In the animation, which object is acted on by a *balanced force?* Which object is experiencing an *unbalanced force*?

7. What is the name of the law that explains why you should wear a seatbelt?

🡪 Click on the link at the bottom that says “Inertia”

8. Define *inertia*:

🡪 Skip down to where it says “Mass as a Measure of the Amount of Inertia” in red.

9. “The more inertia which an object has, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”

10. “A more massive object has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”

11. Mac and Tosh are arguing in the cafeteria. Mac says that if he flings the Jell-O with a greater speed it will have a greater inertia. Tosh argues that inertia does not depend upon speed, but rather upon mass. Who do you agree with? Explain why.

**Newton’s Second Law Name:**

<http://www.physicsclassroom.com/Class/newtlaws/u2l3a.cfm>

1. “The presence of an unbalanced force \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”

2. Write the equation for Newton’s Second Law: F =

3. What is a Newton?

4. Place the Symbols in the triangle that we use:

5. Now use the triangle to complete the problems below:

1. m = 2, a = 5, F = ?
2. F = 20, m = 4, a = ?
3. F = 10, a = 10, m = ?

6. Determine the accelerations that result when a 12-N net force is applied to a 3-kg object and then to a 6-kg object.

7. A net force of 15 N is exerted on an encyclopedia to cause it to accelerate at a rate of 5 m/s2. Determine the mass of the encyclopedia.

**Newton’s Third Law: Action and Reaction Name:**

<http://www.physicsclassroom.com/Class/newtlaws/u2l4a.cfm>

1. “A force is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_object.”

2. Write Newton’s Third Law:

3. “Forces come in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!”

4. The statement means that in every interaction, there is a \_\_\_\_\_\_\_\_\_\_of forces acting

on the two objects. The \_\_\_\_\_\_\_\_\_\_\_\_\_ of the forces on the first object \_\_\_\_\_\_\_\_\_\_\_\_\_\_

the size of the force on the second object. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the force on

the first object is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the direction of the force on the second

object. Forces always come in pairs - equal and opposite action-reaction force pairs.

5. Label the forces on the following diagram. Show the force on the chair and the force on the man.



6. Name the reaction force:

1. A fish pushes on water in a pond and…
2. A bird pushes on the air and…
3. The wheels on a car push the road backwards and…